

MAMMOMAT 1000/3000 Nova

SP

Service

Installation Instructions

Printer option configuration

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Chapter	Page	Revision
All	All	01

Document revision level

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1	Prerequisites	1 - 1
	General	1 - 1
	Systems / Products	1 - 1
	Components included	1 - 1
	Tools / documents required	1 - 1
	Printer requirements.	1 - 2
	Time required	1 - 2
	Safety and protective measures.	1 - 3
2	Installation	2 - 1
	Preparatory Work	2 - 1
	Cable installation	2 - 2
3	Settings	3 - 1
	Settings for printer connection.	3 - 1
	Label settings	3 - 1
4	Label layout and printing	4 - 1
	Label layout	4 - 1
	Printing	4 - 1

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General

This document describes how to install and configure a printer for the MAMMOMAT 1000/3000 Nova. The printer option will enable exposure data to show on print.

Systems / Products

This instruction is only valid for MAMMOMAT 1000/3000 Nova with firmware version 4.4 or higher.

The generator must be equipped with isolation board D707 (kit No. 63 96 704).

Components included

Components included is only valid for the Printer Connection kit. This document is valid for the Dose Calculation kit and for the Printer Connection kit.

Quantity	Material No.	Name
1	63 41 825	Connection cable
1	66 09 544	Floppy disk with Label Configuring Program
1	63 93 024	Cable protection
1	66 08 363	This instruction

Tools / documents required

- Service Program
- Service PC + connection cable between PC and generator.
- Standard tool kit
- Service Program document for affected MAMMOMAT (SPB7-230.114.03...).

Printer requirements

Any printer with serial interface for RS232, fulfilling national standards regarding safety, and being responsive to EPSON printer or compatible commands. The Star printer DP834OS from Star Micronics Co may also be used.

The EPSON codes used are:

ASCII	Hex	Meaning
CAN	18	Clear printer buffer
ESC @	1B, 40	Reset printer
ESC C 6	1B, 43, 36	Define page length to six lines
ESC O	1B, 4F	Cancel bottom margin
ESC 2	1B, 32	Set line spacing to 1/6 inch
ESC M	1B, 4D	Set pitch to 12 cpi
ESC E	1B, 45	Bold print ON
ESC F	1B, 46	Bold print OFF
CR	0D	Carriage return
LF	0A	Line feed

The communication parameters are as follows:

Baudrate:	9600
Data bits:	8
Stop bit:	1
Parity:	None
Handshake:	X-on/X-off

Time required

Approximately 2 hours for one CSE.

Safety and protective measures

It is very important that any intervention in the equipment will start by disconnecting it from the power supply with the main circuit-breaker.

WARNING

After shut-down of the system, there may still be 380 V DC present on the intermediate circuit.

Life-threatening electric shock hazard exists.

The voltage level will be indicated by LED V24 on PC board D710. The voltage will drop to less than 30 V within about 3 minutes, the LED goes out at about 30 V.

CAUTION

The PC boards contain electrostatic highly sensitive components requiring particular care in their handling.

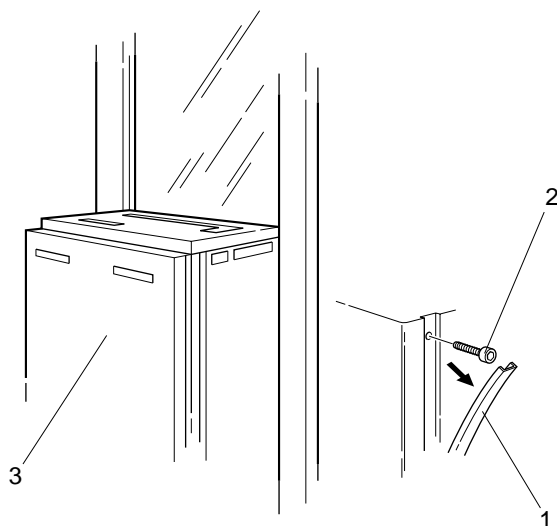
Risk of damaging components.

Follow ESD guidelines. 

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Preparatory Work

1. Mains voltage and system OFF.
2. Open the front cover of the generator as follows:
Pry loose the plastic strips (pos. 1 / Fig. 1) on both sides, using a screwdriver or similar tool. Loosen the sixteen screws (pos. 2 / Fig. 1) now accessible (eight on either side) and remove the front cover (pos. 3 / Fig. 1).



MAN00204

Fig. 1 Opening of the generator

NOTE

Be sure to keep the contact washers (there are four contact washers on either side). They will be needed again when reassembling the front cover, to establish protective ground connection.

CAUTION

Sensitive electronic equipment!

Risk of damaging components.

Follow ESD guidelines and use ESD tools, e.g. ESD-pad with wrist-strap. 

3. Remove the cable outlet cover at the back of the stand (pos. 1 / Fig. 2).

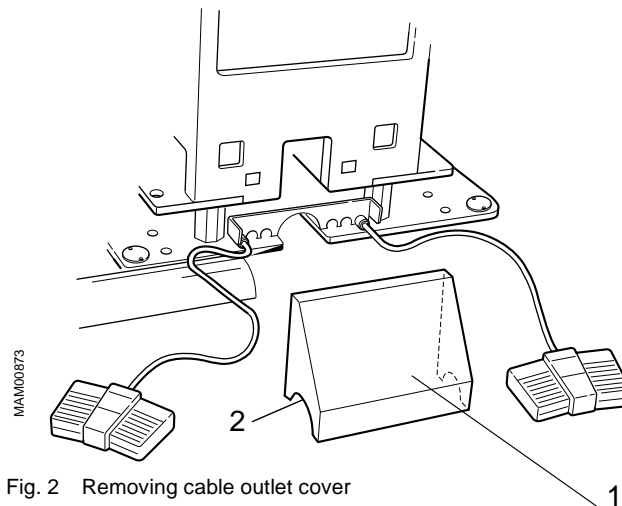


Fig. 2 Removing cable outlet cover

4. Remove the cable duct covers.

Cable installation

NOTE

Not all parts delivered with the printer cable are needed for the installation of this kit.

1. Lay the printer cable between the generator and the stand in the same cable-duct compartment as the IONTOMAT signal cables, unit-control cable and power-supply cable, see Fig. 3. Ensure sufficient cable length between cable entry and connector X2 on p.c. board D707 in the generator, see Fig. 4.

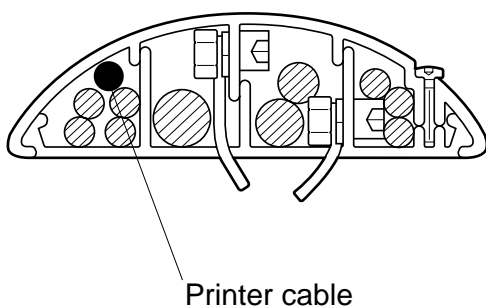


Fig. 3

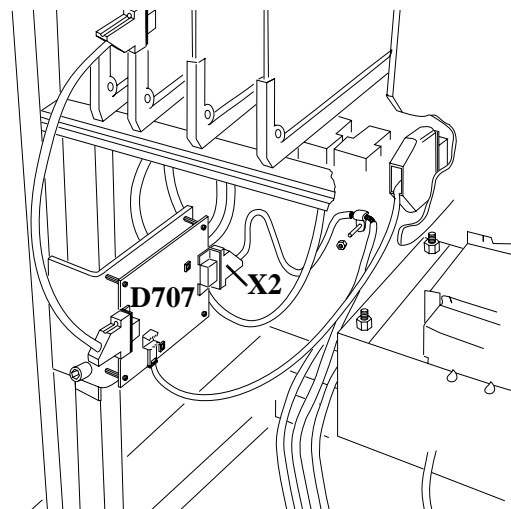


Fig. 4

2. The MAMMOMAT has a free clamp on the generator rear wall, below the D700 board. The cable should here be shielded as shown in Fig. 5.
 - Remove the existing clamp (1)
 - Cut and remove the cable ties (2)
 - Cut and remove isolation (3)
 - Fasten the shield to the wall with the supplied clamp (4)

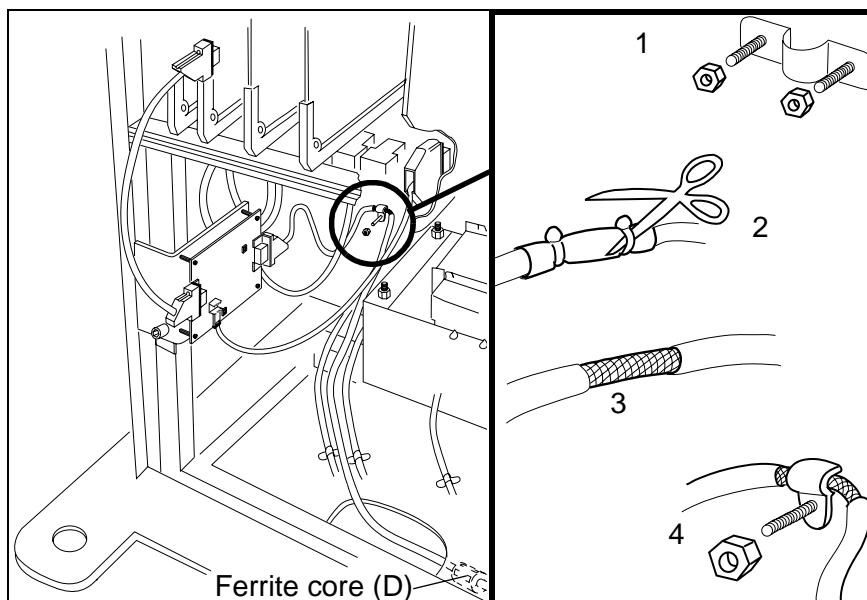


Fig. 5 Shielding cable

3. Mount the ferrite core marked D on the printer cable (refer to Fig. 5).
4. The printer cable should be strain relieved at the stand;
 - Position the strain relieving bushing on the printer cable so that there is sufficient cable length on both sides.
 - Mount a cable tie on the printer cable according to Fig. 6.
 - Tighten the cable tie, cut off the free end and push the bushing over the cable tie.
 - Place the bushing in the notch (refer to Fig. 7) and tighten the bushing.

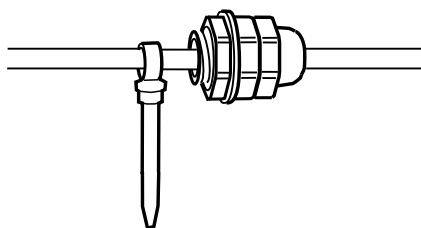


Fig. 6 Strain relieving bushing

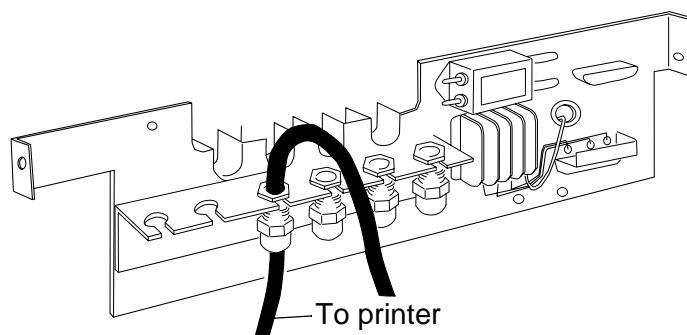


Fig. 7

5. Assemble the 25-pin D-sub. The shield conductor pin should **not** be connected.
6. Attach additional self adhesive cable protection to the cable outlet cover (refer to pos.2/ Fig. 2).
7. Lay the printer cable along a wall and connect it to the printer.

NOTE

The printer should be placed at least 1.5 m from the patient. The total length of the printer connection cable is 8.4 m.

Settings for printer connection

NOTE

How to work with the service PC is described in the document **Service Program for MAMMOMAT 1000/3000/3000 Nova**.

1. Connect the service PC to D702.X990.
2. Insert the service floppy disk and start the *Service* program.
3. Select *Configuration* from the main menu and press <Enter>.
4. Select *Miscellaneous* and press <Enter>.
5. Select *Printer* and press <Enter>.
6. Select *RS232C* using the UP and DOWN cursor keys.
7. Store the programmed values by pressing the <F2> function key.
8. Quit the program by pressing the <F10> function key.
9. Remove the service floppy disk.

Label settings

1. Insert floppy disk "Label Configuring Program".
2. Type *lab3000* and press <Enter>.
3. Type name of institution (max. 25 characters) and press <Enter>.
4. Type number of labels to be fed by the printer when pushing the limit button on the control panel and press <Enter>. This number is dependent on the printer model. Enter a value from 1 to 9 to make it easy to tear off the written label.
5. If default label setup (refer to Fig. 1, Page 3 - 2) is desired, choose *Save Default*. Disregard of steps 6. and 7.
6. To design your own label, choose *Place Item* and press <Enter>. Follow the instructions below:

Institution	Use the UP and DOWN keys to select the desired item
Angle	and press <Enter>. Use the cursor keys in the Label
kV	Location field to move to the position where the appro-
mAs	priate indication is to be printed. Acknowledge the
Anode/Filt.	position with <Enter>, and choose <i>Place Item</i> again.
Table	The Lowest window on the screen shows which items
AEC + focus	are left to be placed.
Exp. time	
Comp. dist.	To delete an item from the label, choose <i>Delete Item</i> ,
Comp. force	select the item and press <Enter>.
Dose	
Exit	Exit this window

7. To store the programmed data, choose *Save Label*.

SIEMENS MAMMOMAT				Date	
Institution					
kV	mAs	Dose	AEC+focus	Exp.time	
Anode/filt.	Angle	Comp. dist.	Comp. force	Table	

MAM00877

Fig. 1 Default label

Field	Input value
Date	Month, day, year.
Institution	Name of institution (max 25 characters)
kV	kV-value for the exposure.
mAs	mAs-value for the exposure.
AEC+focus	Density correction for the exposure. LF for large focus. SF for small focus.
Exp. time	Exposure time in seconds.
Table	18x24 table without grid. 18x24 G table with grid. 24x30 table without grid. 24x30 G table with grid. MAG 1.5 magnifying table (magnification factor 1.5). MAG 1.8 magnifying table (magnification factor 1.8). Stereo biopsy unit.
Anode/filt.	Mo/Mo Molybdenum anode / Molybdenum filter. Mo/Rh Molybdenum anode / Rhodium filter. W/Rh Tungsten anode / Rhodium filter.
Angle	The projection angle during exposure.
Comp. dist.	Compressed thickness.
Comp. force	Compression force.
Dose	Calculated absorbed glandular dose (mGy) for the exposure.

8. Choose *Quit* to exit this program.
9. Shut down the system.
10. Disconnect the service PC and connect the printer cable.
11. Reinstall all covers.

Label layout

The labels shall have at least 40 printable columns and 4 printer lines. The label must be at least 90 mm wide and have a height of approximately 20 mm. There shall be 6 lines 1" (25.4 mm) with a line spacing of 1/6" (4.2 mm) between the start of one label to the start of the next.

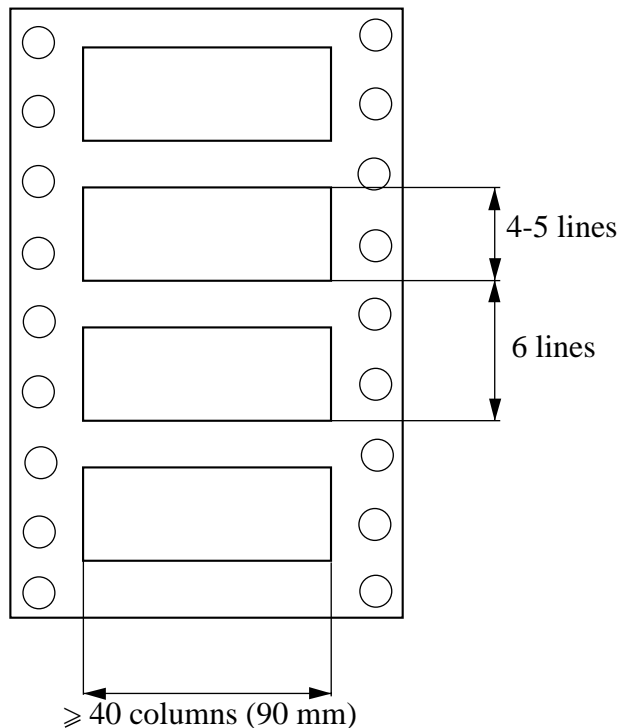


Fig. 1 Label layout

Printing

After exposure the label is automatically printed.

The printer and the MAMMOMAT can be switched on in any order. The form feed of labels can be done either directly on the printer, or by pressing the limit button on the control panel. If the limit button is used, the number of labels specified in the label configuration program (in the form feed field) will be fed. While the limit button is also used for error resetting, the form feed will work only if there are no errors presented in the mAs window.

NOTE

Form feed by pressing the limit button will work only if the printer is switched on after the MAMMOMAT, or after an exposure has been performed.

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